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IntelliPipe Technology: Wired for Speed and Durability

Two Million Bits Per Second Data Transmission Speed Achieved in Major Field Test in Wyoming

NOTE: On September 30, 2002, Department of Energy and industry officials announced the development of IntelliPipe (TM), a major innovation that turns an oil and gas drill pipe into a high-speed data transmission tool. Now, this potentially revolutionary development in drilling technology has completed a major field test at an Energy Department facility in Wyoming. The following describes this test. ► [READ SEPT. 30, 2002 TECHLINE](#)

Casper, WY - Methods for gathering downhole oil and gas well data have grown more sophisticated in recent years, but the speed with which this data is communicated from the bottom of the well to drillers on the rig can be slower than the Pony Express. IntelliPipeTM, a revolutionary new drill pipe with built-in telemetry, hopes to change the state-of-the-art in downhole communication speed.

In a recently completed full-scale field test at the federal Rocky Mountain Oilfield Testing Center (RMOTC) near Casper, Wyoming, the IntelliPipeTM technology was able to transmit downhole data more than 200,000 times faster than technology commonly in use today.

Referred to by some as the "Downhole Internet," the IntelliPipeTM technology has the ability to transmit large amounts of downhole data, such as local geology, temperature, pressure, and rate of penetration to the surface as fast as 2 million bits per second. It also will allow data to be sent the other direction just as fast, giving oil and gas drillers the capability to direct the drill bit more precisely toward oil- and gas-bearing sweet spots and away from less productive areas almost instantaneously. This will enhance the efficiency of oil and gas wells and reduce the number of wells needed to produce a reservoir.

The IntelliPipeTM system was developed by an engineering team of Grant Prideco, Houston, Texas; and Novatek Engineering, Provo, Utah, under a project funded by the U.S. Department of Energy and managed by the National Energy Technology Laboratory.

The key to this system is a unique coupler that is embedded in connections between 30-foot long sections of drill pipe. The coupler permits data to be sent across the small gaps between each pipe section and on through a high-speed cable attached to the inner pipe wall.

In the RMOTC test, more than 4,500 feet of the pipe containing 121 high-speed joint connections was used to

drill through rock formations under real-life loads and pressures. This is first test to deploy more than 1,000 feet of IntelliPipe under actual drilling conditions.

Communication was established along the entire length of the drill pipe for the duration of the test, proving its durability and reliability. Two-way communication was established along the drill pipe while rotating, drilling, removing and replacing pipe in the well.

The IntelliPipe™ joints were subjected to varied drilling conditions, including drilling 400 feet, reaming 600 feet, tripping and racking, and other typical rig handling operations. The electronic modules and wired drill pipes did not suffer any damage during rig abuse.

The successful test at RMOTC helps pave the way for commercialization of the IntelliPipe™ technology, potentially revolutionizing the way companies probe for oil and gas. Grant Prideco and Novatek have formed a joint venture called IntelliServ™ to market the technology.

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